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The Province of Alberta

IN THE MATTER OF "THE NATURAL
GAS UTILITIES ACT"

—and—

IN THE MATTER OF an Enquiry into
Scheme to be adopted for Gathering,
Processing and Transmission of
Natural Gas in Turner Valley

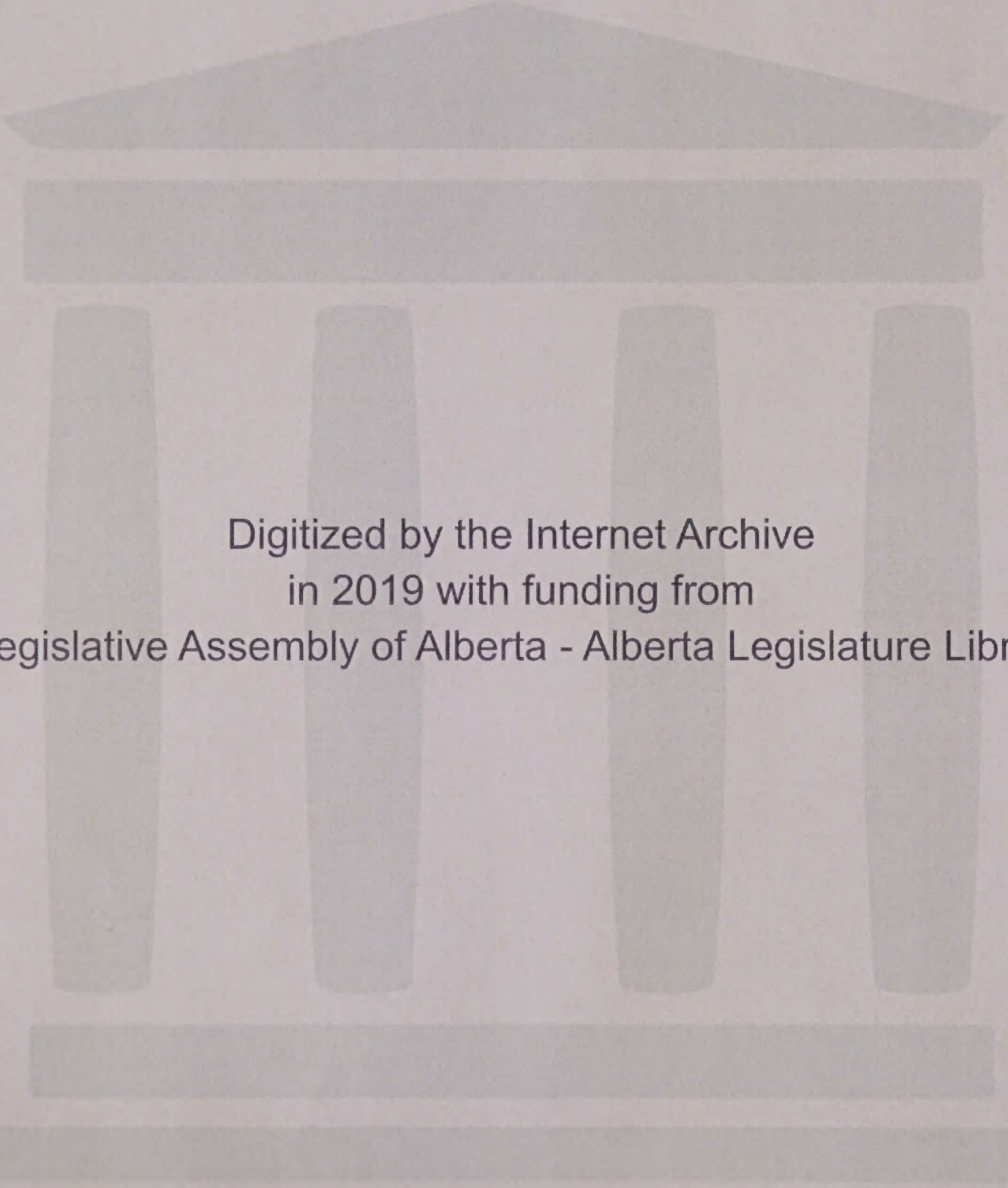
G. M. BLACKSTOCK, Esq., K.C., *Chairman*

Dr. E. H. BOOMER, F.C.I.C., *Commissioner*

Session:

CALGARY, Alberta March 28th, 1945.

VOLUME 16



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I N D E X

Volume 16

March 28th, 1945.

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Corrections

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9.30 A.M. Session
March 28th, 1945

Mr. Fenerty if the Board pleases, we intended to give you some corrections in Mr. Davies' evidence the other day and perhaps that should be done now before the matter is overlooked. Have you volume 13 with you?

THE CHAIRMAN: Yes.

MR. FENERTY: Perhaps we might do it by a memo, I could have it typed. The only trouble with that however would be that there might be some discussion about them.

THE CHAIRMAN: You had better read them.

MR. FENERTY: Yes, I think I had better read them, to see that they are agreeable to every one.

At page 968, this is of no particular importance, in the second line the statement is:

"Well I filed ten, two full copies and eight without the schedules."

It should be:

"Well I filed eighteen with ten full copies."

The others have since been filed.

Page 971, almost two-thirds of the way down at the right-hand side of the page:

"At the extreme North end and from Lowery 7, and Commonwealth down near Mayland."

It should read "From Southern Lowery".

Then page 969, back one page, about eight lines from the bottom:

"834,450 Mcf. beginning in 1946 per day".

That should be "per year".

2. 1. 1980

[illegible]

1910-11, A. J. S.

“...and the other side of the mountain...”

Corrections

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And two lines below that:

"I give 60% of that figure".

Mr. Davies says that should be "83%".

And one line below that "30%" instead of "10%".

MR. CHAMBERS: Is this an error in the transcript or what Mr. Davies should have said?

MR. DAVIES: I cannot tell you, Mr. Chambers. It is difficult to say afterwards what you do say on the stand. I know what the correct figures should be.

MR. CHAMBERS: And you are now correcting that?

MR. DAVIES: Yes.

MR. FENERTY: Then page 972:

"It might be far better to drill in some other place than the Public Utilities".

That should be "Turner Valley". I think we all agree on that.

MR. CHAMBERS: You would not want to drill on the Public Utilities?

THE CHAIRMAN: That last one would all depend on what you are looking for?

MR. FENERTY: On page 973 about ten to twelve lines from the bottom:

" I add the two areas together and treat them all as gas caps".

"Treat them all together as gas cap", that should be singular.

And page 978, the correction Mr. Harvie called attention to, I do not know whether it was made by everybody in the Table but it should be "10,029,000".

THE CHAIRMAN: What column is that in?

Corrections

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MR. DAVIES: The last column, Sir, eight lines down. We have "9949" and it should be "10029".

Then on the next page Mr. Harvie has given it as "10949", about four lines down, and it should be "10029".

MR. CHAMBERS: Well which figure are you taking?

MR. FENERTY: It is "10029", the same figure as in the preceding page.

And in page 985, the Chairman's remark, about five lines from the bottom, it should be "M.M.C.F". It is just plural, there should be two "M's".there.

Then on page 990, and the bottom line: "509.6 billion cubic feet", Mr. Davies says should be "309.6", a "3" for the "5".

Then page 992, seven from the bottom: "And the last recorded by hole pressure", should read "And the last recorded bottom-hole pressure".

Then page 993, about eight lines from the bottom it says:

"Actually 41 to 43 billion cubic feet has been produced".

And it should be "41.3 billion cubic feet." "41.3" instead of "41 to 43."

Then page 997, there^{is}/one correction already made in that page but there is another one four lines from the bottom where it refers to "Royalite No.4", it should be "Royalite No.24".

Then page 1008, on the tenth line there is a reference to "Billion feet", each of these should be "Million feet", again seven and eight lines from the bottom,

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Corrections

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one directly above the other there is the "billion", "16 billion" and "8 billion", it should be "Million" in each case.

Then page 1015 the second line from the bottom, it should be "Shutting in the gas cap", that is deleting the words "Oil in", "This plan is shutting in the gas cap".

Then page 1018, the last line on page 1018, it reads:

"Is 61 less 20, 41.20", it should be "41", and not "41.20".

Then page 1022, the answer of Mr. Davies, the second answer in the middle of the page:

"Do you know, Mr. Davies, that that well is not included in the gas cap allowable at all", and the answer is:

"No, and I did not include it".

Mr. Davies says that answer should be "Yes, and I did not include it". He knew it and for that reason he did not include it.

Then page 1025 in the middle of the page, an answer appears:

"In the crude oil area, yes. It starts off at 17%". Mr. Davies says that should be "10%".

And one more, on page 1032, again about eight lines from the top on the right-hand side:

"Then we only represent about $4\frac{1}{2}$ million feet in this set-up", that should be " $4\frac{1}{2}$ billion."

MR. HARVIE: You will give us a memo of these?

MR. FENERTY: Yes.

Corrections

-1302-

MR. CHAMBERS: If the Board pleases, before Dr. Katz is called, Madison prepared and distributed or handed to the Board and I understand it was afterwards distributed, a so-called report "M-3". Now Madison has no submission to make in respect to it. It was merely prepared for the information of the Board and I may say now that I do not propose to put it in as an exhibit unless the Board or some party represented requests it.

THE CHAIRMAN: What do you wish to do in that connection, Gentlemen? "M-3" as I understand it is merely an alternative method of calculating reserves based on the reports which were made by Mr. Weymouth.

MR. CHAMBERS: That is right.

MR. STEER: We are not interested in having it put in.

THE CHAIRMAN: Mr. McDonald?

MR. MCDONALD: No, I do not think so.

THE CHAIRMAN: Mr. Harvie

MR. HARVIE: No.

MR. BLANCHARD: Mr. Chairman, there is a correction to be made in volume 10 at page 697 of Dr. Katz' evidence, he just called my attention to it. The only correction, Sir, is this, Mr. Chambers' question about the middle of the page:

"Now, Doctor, through my learned friend whom I asked to have a break-down by areas, and my learned friend has handed these to me and I will put them to you for the purpose of getting them down on the record. And this is the question: Can you now give me the dry gas reserves as at January

Corrections

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1st, 1944", and so on. Dr. Katz did not give the dry gas figure. The figures which follow are the wet gas reserves. There is no correction in the record. The question was put in that way but the figures given by Dr. Katz were wet gas reserves as of January 1st, 1944.

THE CHAIRMAN: So that all we add is that these figures are "Wet gas" and not "Dry gas" figures.

MR. BLANCHARD: Yes, it is not a mistake in the record. Dr. Katz should have said they were "Wet gas figures".

(Go to page 1304)

Dr. D.L.Katz, recalled,
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MR. JOHNSON: Mr. Chairman, I would like to draw to your attention a further correction. It is in Exhibit 50 which was filed yesterday, under the heading G.O.P. area, about the middle of the page, there are five items in that part, and in the third item "Connell and Stevens-Guille, M-1 and M-2A", the reference to the latter should be "M-2 Revised" instead of "M-2A".

MR. FENERTY: All the way through?

MR. JOHNSON: Just that one.

MR. CHAMBERS: The note at the bottom will explain the rest of that, Mr. Fenerty.

.....

DR. D. L. KATZ, recalled, having already been sworn, examined by Mr. Blanchard, testified as follows:-

Q Dr. Katz, you were sworn a few days ago?

A Yes.

Q Now I think you have prepared a comparison of gas reserves estimates for Turner Valley on the various reports that have been made and the evidence given here?

A That is right.

Q And you have prepared a summary and certain recommendations to the Board, whom you have been called to advise. Those recommendations and the summary are put in document form?

A Yes.

Q I would like to tender that as an exhibit.

THE CHAIRMAN: Exhibit 52.

COMPARISON OF GAS RESERVES
ESTIMATE FOR TURNER VALLEY
MARKED EXHIBIT 52.

Q MR. BLANCHARD: Now, Dr. Katz, if you would read

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your summary and recommendations and make such comments as you see fit as you go along. I notice for one thing that there are some amendments to figures in the Tables. You might just as you read them explain the reason for those changes?

A I will do that. On Page 1 of the report, "Summary of Turner Valley", it should read "Turner Valley", Summary of Turner Valley Gas Cap Reserves Estimates.

Three estimates have been made on Turner Valley Gas Cap reserves as follows: (wet gas).

Gordon Connell 290 billion down to 100 pounds, that is down to the 1st of January, 1945.

D. L. Katz, my estimate, 215 billion down to 100 pounds as of the 1st of January, 1945.

R. E. Davis, 300 billion down to about 250 pounds, the 1st of January, 1945.

Mr. Connell and I used material balance methods with Mr. Connell using data from 1934 to 1944, and I the initial data to 1944. Mr. Connell used weighted pressures by a contour map and I used pressure weighted by assigned acres.

Mr. Davis used a decline curve to get reserve - an average of arithmetic and weighted average pressures.

The primary difference between Mr. Connell and myself is the average pressure used in 1944.

The difference between Davis and myself or Mr. Connell cannot be accounted for without unusual assumptions. Figure B on Turner Valley gas cap is an attempt to explain these differences. The hollow, that should be hollow, and solid circle points are Mr. Davis' weighted and arithmetic average pressures respectively.

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Q It should be "hollow" not hallow"?

A Yes, hollow. Curve 1 is the calculated reservoir pressures using Mr.Davis' 1600 billion cubic feet initially present and his original pressure. If Mr.Davis' figures are correct, then the equalized well head pressure in the gas cap today must be 750 pounds instead of the 565 weighted average pressure or the 473 arithmetic average pressure.

If you will turn to Figure B, 1100 billion cubic feet gas production, which is representative approximately at this time, you will see that the two pressures I have just read are the weighted average by contour map and the arithmetic average, and the pressure would have to be according to these calculations some 750 pounds at the well head. In other words, the pressure represented by the curve 1 at the same volume of gas produced.

Curve 4 is for Mr.Davis' estimate assuming that the 565 pounds well head pressure is correct. To draw this Curve 4 as part of an equalized pressure curve from Mr. Davis' 2050 pounds well head pressure and extending another 500 billion cubic feet, down to zero pressure, one must check to see what gas production would permit the curve to be true. The reservoir at conditions corresponding to 565 pounds well head pressure, that is 652 pounds in the reservoir, contains 48.5 cubic feet gas per cubic foot of space. Thus 500 billion divided by 48.5 cubic feet gas equals 10.3 billion cubic feet of space. This space from 2050 pounds well head to 565 pounds well head yielded, $218.5 - 48.5$, which makes 170 cubic feet of gas. The total gas production must have been 170×10.3 , or 1755 billion cubic feet of gas instead of the 1100 billion reported.

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Neither of these results will even approximately accord with the known facts.

Curve 2 is the theoretical curve for equalized reservoir pressures of myself, my calculations, and you will see that it goes through the arithmetical average pressure, just a little above the arithmetic pressure at the 1100 billion cubic feet, and curve 3, which is the short curve from the hollow circle point down to 1445 billion cubic feet production, is that obtained by either Mr.Connell's or my method assuming that the weighted average pressure by contour map is correct. In other words, if I accept his pressure I get the same answer he does.

Mr. Stevens-Guille does not use the gas down to 100 pounds. You will recall Mr. Stevens-Guille stated that approximately 190 pounds average pressure in the gas cap was his pressure at the time of abandonment of the field.

Before any further consideration of differences between Mr.Connell and myself is made, the disposition of the gas in the reports by Mr.Stevens-Guille should be observed. In M-2 and M-2A he does not use the gas down to 100 pounds in the reservoir and hence gets a reserve similar to myself as shown in the attached Table I.

I recommend that the values from report M-2 revised be accepted as representative of the best information available since it is a mean between the conservative and high estimates.

And I have here in Table I tabulated the Turner Valley gas cap reserves, residue gas as of January 1st, 1945, in billions of cubic feet. Should I read the Table?

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Would you like me to read the Table?

THE CHAIRMAN: I do not think so unless anyone wishes it.

A I believe these figures are substantially correct. There are no corrections in this particular Table. Page 3.

SUMMARY OF GAS RESERVE ESTIMATES FOR
TURNER VALLEY CRUDE OIL AREA

All the reserve estimates for gas in the crude oil area except those of myself were made using decline curves or declining percentages. Table II is a summary of the wet gas reserves as abstracted from the several reports. Corrections were necessary to bring Mr. Connell's and Mr. Stevens-Guille's figures down to January 1, 1945. The residue gas figures are presented by Table III. The source of these figures is tabulated in Appendix "A".

Possibly we should go to these Tables on Page 4. Table 2. I think I have made pencil corrections in every one's copy here. The mimeographed figures as presented in this Table are correct as to the method of getting them. I mean, the figures correspond with the method of getting them, but the corrections in Mr. Connell's "A" and "B" method in Table 2 for gas produced in 1944 are used from Mr. Stevens-Guille's M-2 revised, and the figure which I used was the gas processed and not the gas produced. In other words, the wells that were not attached to the system, or were not producing into the system, were not included in the corrections. So that I have put pencilled figures, which Mr. Connell agrees with, I understand now, and

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which would be his calculation for the same things that I have made, and I will just read them. Mr. Connell's "A", British American, 37.6, G.O.P. 23.1, the Royalite 199.5, or a total of 260.2. Connell "B", British American 21.5, G.O.P. 15.8, Royalite 118.6, for a total of 155.9. I believe there is also a correction in Mr. R. E. Davis' figure of 138.8. That is the total wet gas gathered, and for the total wet gas produced it should be 146 billion feet, the difference being the ungathered gas which he separates in his wet gas figure.

Going to Table III on Page 5, these are the residue gas reserves in Turner Valley Crude Oil area, as of January 1st, 1945. The figures were taken as given in Appendix "A" from Mr. Stevens-Guille's M-2 and M-2A, and were taken from charts which had not yet had a correction for the second extraction loss for the gas that was to be repressured. In other words, the repressured gas goes into the reservoir, and Mr. Stevens-Guille assumed that it would have a second extraction loss, and in his summary, as I understand it, taking into account that second extraction loss, you would get the pencilled figures which I will now read. M-2 revised, British American 23.0, G.O.P. 8.6, Royalite 107, for a total of 138.6. Mr. Stevens-Guille, M-2A, British American 12.8, G.O.P. 5.6, Royalite 68.2, total 86.6.

I would just like to say that this correction that Mr. Stevens-Guille has made does not take into account, as I understand it, the amount of gasoline or vapours which might be picked up by this dry gas, and also the fact that the dry gas dilutes into the reservoir, and all of it is not really produced, if you assume it is diluted

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into the reservoir but only a portion comes out. But I understand that these corrections I have made are in accord with his estimate.

Going back to Page 3, the second paragraph, the use of the decline curve based on a two year record under proration with the Brown formula gives a range of wet gas reserves from 115 to 272 billion cubic feet depending upon the method of declining the production or upon the condition at abandonment for gas production. The material balance method using 24 hour shut in reservoir pressure is known to give a low or conservative estimate of the gas reserve. The material balance method does complement the decline curves in showing that sufficient gas is in the reservoir at the present time to supply the quantity produced under the decline method.

You will recall that Mr. Connell presented results of material balance calculations of these areas assuming 200 pounds per square inch higher pressures in the reservoir than the 24 hour built up pressures, and when raising the abandonment pressure to 350 pounds, these calculations gave an extra 50 billion cubic feet of gas over the figures in the supplementary report which I presented.

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The use of estimated operating well head pressures corresponding to the gas gathering line pressures is the best method known to determine the future production rates and abandonment time for a well. This procedure was followed by Mr. Stevens-Guille in M-2 and M-2-A.

Mr. R. E. Davis' uncertainty with respect to the reservoir conditions after 1952 and his reluctance to assume that wells will be able to economically produce gas after 1952 notwithstanding that in his opinion the pressure might be between 400 and 500 pounds may account for his low estimate of gas reserves in the crude oil area.

It is recommended that the reserve estimate of Mr. Stevens-Guille' report M-2 (Revised) be accepted as representative of the information presented. The report has the advantage over material balance results of presenting yearly schedules of estimated production and gas repressured. Differences between the other results and M 2 (Revised) can be explained as coming within a reasonable error, depending upon the assumptions made.

Now I just add a note here about "Capacity of wells"

The method of plotting the open flow capacity of a gas well as a function of the reservoir and operating pressures is an accepted practice and is heartily recommended. The adaptation of Mr. Connell of using well head pressures and assuming the productivity index of the well remains constant with time should give a fairly reliable estimate of the field's capacity to produce gas at given well head pressures.

As the oil wells become secondary gas cap wells, their productivity for gas should increase many fold. A separate study is being made of this point but it would appear that a goodly number of the wells in the oil area are likely

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to become producers of gas throughout the remainder of the life of the field. These wells should bolster materially the peak load capacity of the field at a date when the gas cap wells alone do not have sufficient capacity at the operating pressures used.

We had a little discussion of this yesterday afternoon and I do not wish to infer that the conclusions are definite at this time, that these oil wells will be good producers of gas but I do believe that a method has been set forth which, when applied to the field, will give a picture of the ability of these wells to produce gas and I sort of have a feeling that their ability to produce gas has not been taken into account quite to the extent that they will be able to produce gas down the line.

I have a summary on the first page: "Comparison of Gas Reserves Estimates for Turner Valley".

The following gas reserve estimate is recommended as representing a mean of the best information available on Turner Valley. The reserves are given in billions of cubic feet of residue gas at 14.4 lbs. and 60°F as of January 1, 1945.

And I will read them:

Gas Cap, British American Area 22.5, Gas & Oil Products Area 14.4, Royalite Area 170, for a total of 206.9.

Oil Area, British American Area 23.0, Gas & Oil Products Area 8.6, Royalite Area 107, for a total of 138.6.

The total then for the British American Area 45.5, Gas & Oil Products Area 23.0, the Royalite Area 277, a total of 345.3.

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.....

	<u>British American Area</u>	<u>G.O.P. Area</u>	<u>Royalite Area</u>	<u>Total</u>
Gas Cap	22.5	14.4	170	206.9
Oil Area	<u>23.0</u>	<u>8.6</u>	<u>107</u>	<u>138.6</u>
Total	45.5	23.0	277	345.3

.....

These figures are based on Mr. Stevens-Guille's report M-2 (Revised) using decline curves. They are 11.5% above the reserves calculated by material balances by methods known to be conservative. The adoption of report M-2 (Revised) provides schedules of future gas production and repressure by plants. The general agreement of the several reports presented and the complementary nature of the material balance and decline curve calculations lend support to the validity of this reserve estimate.

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Q Dr. Katz, there was only one thing I thought I might ask you, arising out of the evidence that has been given and that is with respect to the fears expressed that liquid loading of wells in the oil area may affect very materially the production of the wells as the pressure drops. Mr. McCutchin yesterday stated that he thought possibly the liquid loading factor would diminish rather than increase as the pressures dropped below 500 pounds. Have you any opinion on that at all that you would care to express?

A Speaking of the gas cap first.

Q Take the gas cap first and then the oil area.

A The liquid loading in gas wells, that is the column of liquid at the bottom of the wells, is the result of the operation of production of liquid from the formation and the ability of the producing string to take the liquid out once it is produced. As you decrease the pressure in the bottom of the well, which results from decreased reservoir pressure, you have a decreased flow and that decreased flow will make it more difficult to remove the liquid by flowing up a given diameter flow string and the production of liquid from the formation, I believe, will decrease as the reservoir pressure decreases because vaporization will take place. In other words, I feel the maximum quantity of liquid is now present in the gas cap that will be there and that quantity of liquid will dissolve in the gas cap itself in time. Between decreased production and the decreased ability of the wells to produce it at least should not make it an increasingly difficult problem and might later on make it a simpler problem than it is today. In the oil area low permeability wells will probably have difficulty in producing down to low pressures in the reservoir but high

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permeability wells, I believe, will be somewhat similar to the gas cap wells with more of a problem of liquid loading, if you wish to look at it that way, because of the crude oil present in the gas cap but it will be somewhat a matter of degree and not entirely a different problem.

MR. FENERTY: No questions.

THE CHAIRMAN: Mr. Steer?

MR. STEER: No questions, sir.

.....

CROSS-EXAMINATION BY MR. CHAMBERS.

Q Dr. Katz, I am only going to question you with regard to converting these figures you have given us to 1944. Probably I should say at this stage for the information of the Board and the others represented as to why I particularly have been interested in this figure of January 1st, 1944 rather than January 1st, 1945. It is mainly this. My client, the Madison, was formed and began operations in 1944. There may be some question when we come to the matter of accrued depreciation and matters of that kind and it was merely for that purpose that I would like to have these converted to that date. Now Dr. Katz, on your Exhibit 52, and as shown in Table 8 of Exhibit 47, which is M-2 (revised) and referred to in your Exhibit 52, on the 7th column of Table 8, opposite Royalite Oil Company Gas Cap. For the year 1944, it shows actual deliveries to the market of 8.174 or 8.2 in round figures. In the same column for the oil area for the year 1944, from the Madison gas system, it shows 7.8 billion and the sum of those, roughly, is 16 billion. Now my question is this, if we add that 16 billion to your figure of 345.3, as shown on page 1 of Exhibit 52, we get the 361.3 billion

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which is the figure, you recall, referred to by Mr. Stevens-Guille in his Exhibit 47. That would be a proper reconciliation?

A That is a proper correction. That is right.

Q Thank you, Doctor.

.....

CROSS-EXAMINATION BY MR. McDONALD.

Q Dr. Katz, there is just one thing I would like to ask you with regard to estimating reserves and with particular reference to the South end. What I have in mind is estimating the reserves of individual wells. I take it there are three types of wells, first the gas cap wells and then the secondary gas cap wells and crude wells. Can you give any opinion as to how or what would be a good method of estimating the reserves of each individual well for the purposes of comparison with other individual wells in the area?

A You are referring to gas reserves now only?

Q To gas reserves only. Not oil production.

A Of course the ideal would be some method of getting the gas in place. With the gas not in place it is difficult to estimate unless you simply went on the acreage pressure value which would be represented by the Brown allowable. The Brown allowables, however, do not take into account the ability of these wells to produce. It would seem that some combination of the Brown Allowable, which represents acres and pressures with a factor which represents the ability of the wells to produce, some productivity factor; if you would weight some percentage such as 50 per cent on the Brown allowables and 50 per cent on the productivity of the well, that would be the best method

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I would know of without further study. It would seem like a reasonable method of finding the sharing position in the total production of the future, which is really what you are looking for.

Q Yes.

A I have not thought particularly of gas cap wells as coming in that. It might be that the gas cap area could be treated separately on the Brown allowable alone but again I am not sure. I think probably the same considerations apply to the gas cap as they do for the oil area.

Q This productivity factor will have particular application to the high gas/oil ratio wells, the crude wells you have an idea will produce more because

A When I say productivity factor I do not mean the ability of the wells to produce gas today. Because, as time goes on, the given ability to produce by the formation for a given pressure differential will change with respect to gas production because of the difference in the viscosity of the oil and gas and because of the changing percentage of saturation of liquid in the porous formation. Some method for getting the productivity and including the actual production, corrected to the flow of gas at the future date.

Q From your consideration of the problem, do you think such a factor could be worked out that would be reasonably fair?

A Yes, I think if a production test were made of a well, knowing the production, the gas production record over a period of time such as a week, and pressures were measured at the time of shutting in the well for a period of a few days, to get a build-up curve, that information would make it possible to evaluate the productivity of the well for these purposes.

Q That is all.

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MR. HARVIE: No questions.

THE CHAIRMAN: Thank you very much, Dr. Katz. Now has anyone anything further to offer the Board in relation to gas reserves.

MR. CHAMBERS: I do not know whether this is particularly gas reserves but there is one matter I wanted Mr. Stevens-Guille to clear up. I can either put it in now or at a later time. It is in reference to the answer that Mr. Ralph Davis gave in connection with the discussion as to the pressure capacity that was required 7 or 8 years ago. So far as my questioning is concerned, it will only take a minute or two and if the Board would prefer it now I am willing to put Mr. Stevens-Guille in, or later.

THE CHAIRMAN: It has a direct reference to the subject we have been dealing with.

MR. CHAMBERS: Not exactly in connection with reserves although it probably grew out of a discussion in that connection. Probably we will deal with it later when we clean up these other things.

THE CHAIRMAN: All right. Now although this particular issue would appear to be finished I want everyone to understand that they still will have the right and the opportunity to produce further evidence if they wish, and to cross-examine further any witnesses who may be available. The Board does not propose to bring Dr. Katz back, perhaps for very obvious reasons. But any witness who is available may be subject to cross-examination if requested.

MR. STEER: I have assumed that was so, sir, because I expect Mr. Davis will want to say something on what has been said here this morning. But I am not in a position to say.

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THE CHAIRMAN: Quite so. Yes. Now the next item on our tentative agenda is present and estimated future demands. I do not want to put wrong ideas into anyone's head but I rather assume that no one expected that we would reach that item, or that it would be proceeded with today. On the other hand we are here and if you wish to embark upon that, very well.

MR. STEER: I think I had better make a statement, sir. We have furnished through Mr. R. E. Davis and through Mr. Stanley Davies and I think Mr. Stevens-Guille the best estimates we can get on the future market. Mr. Blanchard has asked for certain additional information in respect to peak loads and with respect to the capacity of Foremost and Bow Island to assist in supplying those peaks. That information we are preparing. If there is any other information that any other party desires, if they will let us know we will get it. I think it is not necessary to add anything to what has already been put in in these reports to which I have referred.

MR. CHAMBERS: Except this. I had anticipated the Gas Company would probably put some witness in the box, not with the idea in mind that there is any great controversy but I think it would be for the benefit of the Board and all of us if we had an opportunity of asking some questions, maybe, as to the probabilities for the future and so on.

THE CHAIRMAN: Some one will be presenting the information that Mr. Blanchard has asked for.

MR. CHAMBERS: I just want to make it clear

MR. STEER: If any party wants to cross-examine an officer of the Gas Company, he will be produced.

THE CHAIRMAN: Very well. It might be well to have the information asked for presented by an officer who will be sufficiently familiar with the whole subject.

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MR. STEER: Mr. Browning will be the witness. I would suggest that parties who want any information will let us know, because Mr. Browning is not able to anticipate what will be required. He will have to make his investigations.

THE CHAIRMAN: Quite right. I would anticipate that item would not take very long. In that connection we will revert to our 9.30 to 1 o'clock sittings next week and sit in the mornings only. Then items 2, 3, 4 and 5, I think possibly we should be able to finish those next week.

MR. CHAMBERS: At this stage I probably might say something of what has been in my mind concerning item 3. I would like to make my position clear, and that of my clients, at this time so that nobody can be under any misunderstanding, that in the absence of evidence produced to this Board of reserves elsewhere in the Province, my submission would be that there just are not any reserves so far as this Board is concerned. This is a Hearing at which the Board is to receive evidence and if no evidence is submitted that the Board is bound to act on the evidence and that might have a considerable bearing on this question of Turner Valley.

THE CHAIRMAN: Of course I had an idea that Mr. McLaws was going to present evidence with relation to areas owned by the Standard of California or Standard of British Columbia.

MR. RAGNAR JOHNSON: California Standard.

THE CHAIRMAN: And Mr. Slipper has filed his submission. I have not read it. I do not know whether he is going to be here to give evidence on it.

MR. STEER: Yes he is, sir.

THE CHAIRMAN: Well then, the probability is that these items will keep us going for our three days next week, Tuesday,

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Wednesday and Thursday. Then it would appear as if there is nothing further before us this morning,

MR. CHAMBERS: Do you intend to deal with item 5 next week?

THE CHAIRMAN: If we reach it.

MR. CHAMBERS: The reason I mentioned that is I am particularly interested in items 6 and 7 on the agenda and there will be witnesses I will have to call, one witness from out of the city and I am sure some of the others and if we could have a definite date, sir, a week from next Monday we would start that subject probably it would save money all around and save time maybe.

THE CHAIRMAN: Item 5 was put on the agenda at the request of Mr. Porter. Up to the present time we have not seen Mr. Porter at this Inquiry and I have not any idea whether he is coming or whether he is not. I do not know of any other of the parties here who intends to present evidence respecting competitive fuels, unless it be Mr. McDonald.

MR. McDONALD: I do not know what the City of Calgary are going to do. In their submission they referred to competitive fuels. We will have ready a submission, but personally I would prefer to submit it when dealing with the question of the price of gas later than at that time.

THE CHAIRMAN: The only thing is, how many times are we going to shuffle this agenda around? When I prepared the first one I think we had competitive fuels at the bottom of the list. At the request of counsel, it was changed to some other place and this is still a further revision. Surely we must have some degree of regularity about what we are going to do.

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MR. McDONALD: The submission I have on that, in view of the fact that it was advanced on the schedule or agenda, the submission cannot be typed and submitted much before Tuesday.

THE CHAIRMAN: Perhaps we had better do this, Mr. McDonald. We will go along with items 2, 3, 4 and 5 as far as we can next week, but I think that since witnesses must come from the United States in respect to items number 6 and 7 that we should have some definite date on which they should be here and no matter whether 2, 3, 4 and 5 are finished or not finished, we will begin consideration of items 6, 7 and 8 on the 15th of April.

MR. RAGNAR JOHNSON: The 16th is Monday.

MR. HARVIE: Just in that connection, is Mr. Biddison making any submission?

THE CHAIRMAN: No, as I mentioned the other day, Mr. Harvie, Mr. Biddison was not called by the Board for the purposes of making any detailed valuation. He was called for the purpose of making an analysis of the evidence of the other people.

MR. HARVIE: Is he making that in advance of the evidence?

THE CHAIRMAN: No.

MR. HARVIE: So that we will not expect to see him until after the other evidence is in.

THE CHAIRMAN: If there is no submission by Mr. Biddison you may not even see Mr. Biddison. If there is going to be a submission by him and if he is going to give evidence, Mr. Harvie, you shall have it as soon as it is prepared and ready.

MR. HARVIE: Speaking of item 7, I understand on

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items 6 and 7 the evidence is starting on the 16th.

MR. BLANCHARD: It should be the 9th should it not and not the 16th?

MR. STANLEY DAVIES: Yes, the 9th.

MR. STEER: Next week is the 2nd and the following week is the 9th.

THE CHAIRMAN: Yes, the 9th.

MR. HARVIE: One other question, Mr. Chairman, in connection with item 6. We are bringing an expert from the United States in connection with our valuations on item 7 I should say, and I am just wondering if we could get some further information as to the possible time that number 6 will take. It is no good having him here a week in advance if item 6 will take three days.

THE CHAIRMAN: What have you to say to that, Mr. Chambers. Mr. Harvie desires to have some idea as to when item 6 will be finished so that he may bring his witnesses for item no. 7.

MR. CHAMBERS: Well that probably will be more in the control of the other parties than in my control. Our reports are filed already. I do not expect it would take a great deal of time, any more than it would take to read the report. I will have some questions, but I imagine some of the others will have more questions than I do.

THE CHAIRMAN: I think it is highly probable. I think we will then reach the question of economics, will we not?

MR. CHAMBERS: I would say that Mr. Hill would take most of the day when he reads his report and with his direct examination.

MR. HARVIE: Do you think it will be necessary to have our witnesses here that week or the week of the 16th?

THE CHAIRMAN: I think the week of the 16th. I do not think you should be asked to bring him here in the hope that

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we will be ready earlier. Bring him for the 16th.
We will now adjourn until 9.30 A.M. on the 3rd of
April.

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